

Auke Lake (x01) – nearby hotspot



Fig 5.38 On November 30, 2002 we counted 600 Canada Geese and 500 Mallards on Auke Lake. This is close to the total number of Vancouver Canada Geese that we have estimated for the entire Mendenhall Wetlands (500-700) and nearly equal to the total number of Mallards that we have counted for the entire wetlands (540).

- **Auke Lake appears to be a very important resting area and “refuge” for Canada Geese and Mallards that typically forage for food on the Mendenhall Wetlands.** For both species we counted numbers in the hundreds on the monthly surveys in October, November and December until freeze-up. We found no use of Auke Lake by geese or mallards in August and an adjacent resident (Gretchen Bishop) kept records of the birds using Auke Lake and did not note any significant numbers until October.
- In late fall, during waterfowl hunting season, Canada Geese and Mallards typically leave the wetlands near sunrise, fly to Auke Lake, and then return to the wetlands after sunset. The geese apparently forage on

Lynngbye sedges and other salt marsh plants throughout the night.

- If disturbed on Auke Lake they will fly to the Mendenhall Wetlands at other times. We once observed large numbers of geese flying to the wetlands from Auke Lake during hunting season around noon. We checked Auke Lake and found it being used by jet skiers.
- Other waterfowl occasionally use Auke Lake but in smaller numbers. We have counted up to 75 American Wigeon and 30 Barrow’s Goldeneyes during the fall surveys. Other species are probably underestimated because of the difficulty seeing them amongst the large numbers of geese and Mallards and the long distance impairing identification.



Fig 5.39 The twice daily flight of geese to and from Auke Lake often takes them directly through the western airplane approach path to the runway. This photo was taken on November 20, 2001 when they had been disturbed on Auke Lake. Notice the elevation above the approach lights at lower left.

Twin Lakes (t02) and Vanderbilt marsh (t04) – nearby hotspots



Fig 5.40 Vanderbilt marsh as viewed from the Pioneers Home, Oct 12, 2003.

- **Twin Lakes is an important feeding area and “refuge” for Mallards and scaup during fall hunting season.** Throughout this area, resting birds are less than one quarter mile from roads, thus off-limits to hunting. We have counted around 100 Mallards on surveys during October – December in the marsh adjacent to the Pioneers Home. Counting Mallards from the road certainly results in underestimates. On Nov 1, 2002, we traversed Vanderbilt marsh while vegetation mapping and successively flushed 150 Mallards in groups of 20 to 40. We had only seen a fraction of these from the road beforehand. Up to 100 scaup have also been observed diving and feeding in the more open waters of Twin Lakes in October and November.

- Great Blue Herons frequently hunt for fish in this marsh and a pair of Red-winged Blackbirds nested there in 2003.

Fig 5.41 View north over Egan Drive. Vanderbilt marsh, t04, was the original estuary of Vanderbilt Creek. During Egan construction, the creek was moved to the dredged channel in distance.

- Twin Lakes is a good area to look for the less common waterbirds. We have seen American Coot, Hooded Mergansers, Ring-necked Ducks, Canvas-backs and a Ruddy Duck on Twin Lakes. It is the best place in Juneau to find American Coot and Hooded Mergansers. Several of each species have been present here in recent years.



6 Comparisons with Cain et al. 1988

We compared the results from our study (2002-2003) with the U.S. Fish and Wildlife study done in 1986 (Cain et al. 1988), using the maximum bird counts by month for both studies for selected bird species and groups (Figs 6.1 and 6.2). Because of differences in methodology of the two studies, we felt that the maximum numbers were most likely to reflect the relative abundance of the selected species and groups during the two time periods. We also used ArcView to compare spatial distribution of birds in the two studies.

These comparisons provide some insight as to the current status of birds now using the wetlands compared to what existed about 16 years ago. The two studies were roughly comparable, since they both surveyed the entire wetlands in a systematic manner. However, comparisons of this sort can be difficult because the observers were not the same and the techniques, timing and frequency of surveys differed between the two studies. One would expect maximum counts to be somewhat higher for the 1986 survey because the refuge was surveyed many more times per month than in 2002-03. For each species or species group we present our opinion as to its current status.

Canada Geese We think that the numbers of Canada Geese currently using the Mendenhall Wetlands are somewhat less than observed 16 years ago, because in every month except August and October we counted fewer geese than were counted in 1986. However, we believe that the decline is not as great as the data might indicate. The 1,753 geese observed by the USFWS in February may be due to counting the same birds more than once. If the geese are disturbed they typically fly from one part of the wetlands to another. Hence, during a survey that takes several hours, it is quite possible to double-count the same individuals. During our surveys, we kept track of flock movements as much as possible. It seems unlikely that the local population of winter-resident Vancouver Canadas would suddenly increase in numbers during one mid-winter month in 1986.

Of all Canada Goose observations in 1986 involving more than 25 birds ($n = 61$), only 2 records were south of Gastineau Channel. We noticed the same pattern in 2002-03; for observations of >25 birds ($n = 42$), only two were south of the channel. Evidently there is little to attract geese to the Douglas side for either foraging or resting.

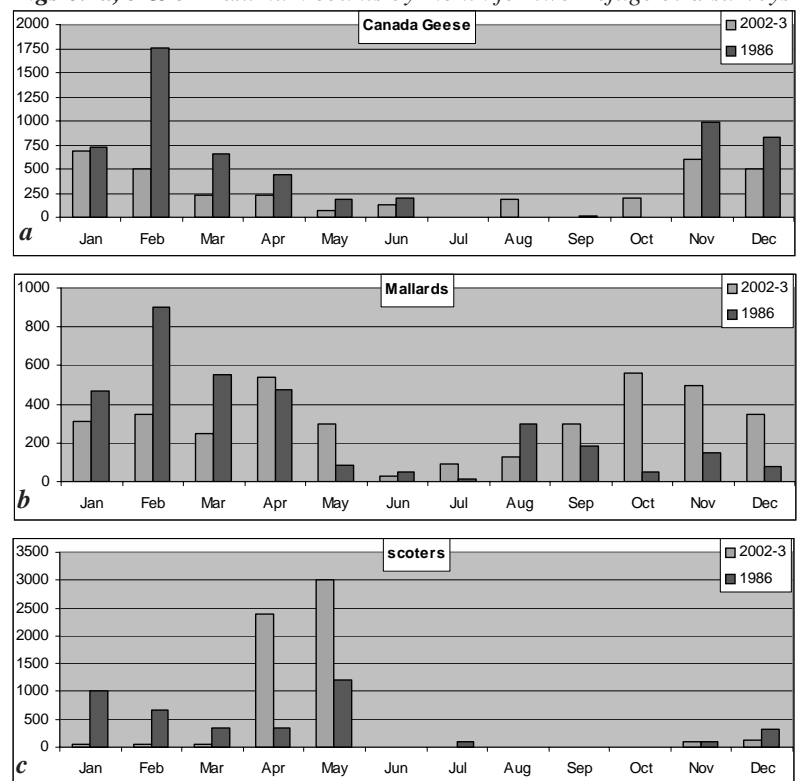
Mallards The number of Mallards currently using the wetlands is probably similar to the number in 1986. However, seasonal use now appears to be much greater in fall and less in winter. This shift in monthly use may be related to a shift in numbers and location of duck hunters.

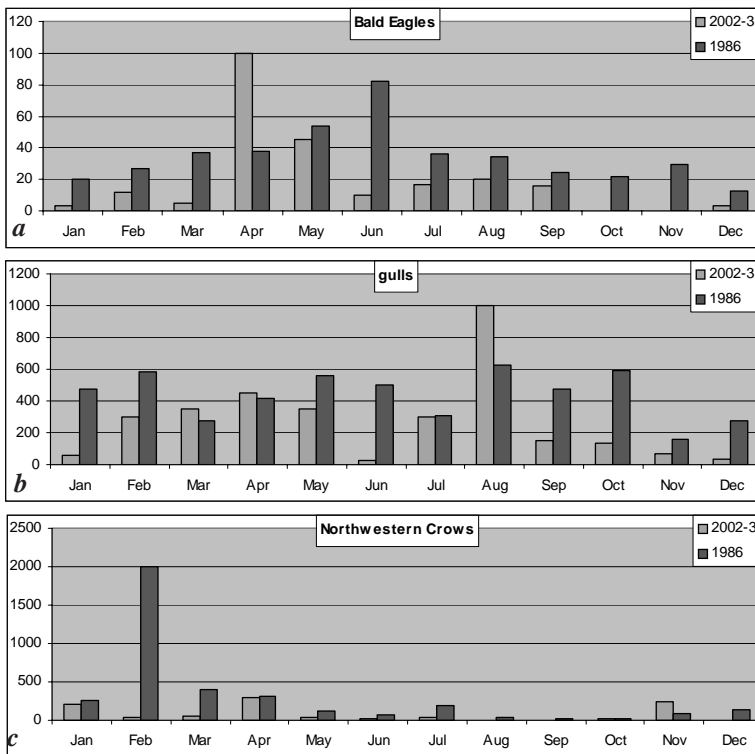
It appears that mallards are gathering in larger groups. In the 1986 study, USFWS observers saw Mallards in groups of 100 or more only 10 times. In 2002-03, we had 71 records of groups of 100 or more (39 records during full surveys), in spite of conducting far fewer surveys than the FWS team. Locations of Mallard observations were very similar in the two studies.

Scoters The number of Surf and White-winged Scoters using the waters near the wetlands is similar to that observed in 1986, but there appears to be a dramatic shift in timing. We saw few scoters during the winter months from December into March, yet the USFWS counted considerable numbers (high counts of 300 to 1,000 birds each month) during that period. This raises a number of questions. Have the numbers of scoters wintering in Alaska declined? Is the difference simply due to a shift in local wintering habitat? Are the scoters we observed migrants from outside Alaska? How does this relate to the overall decline of the Alaska breeding population of scoters (Conant and Groves 2001)?

Comparing spatial distribution in ArcView for the two studies reveals several differences. In 2002-03, we recorded no scoters of either species in Gastineau Channel near BayView subdivision (f04 in our study; unit 26 in the USFWS study). The 1986 survey counted 300 to 650 Surf

Figs 6.1a, b & c Maximum counts by month for two Refuge bird surveys





Figs 6.2a, b & c Maximum counts by month for 2 Refuge bird surveys

Scoters in this area in 4 months from November to May. Perhaps this merely reflects the fact that our counts were mostly taken around low tides, when the channel narrows and would not be suitable for large scoter flocks. In contrast, USFWS surveyed at randomly chosen times, covering a wider range of tidal heights.

Bald Eagles The numbers of Bald Eagles currently using the wetlands appear to be much less (about 50%) than what was observed 16 years ago. Since Bald Eagles are easily counted, we doubt that these differences are due to counting methods or observers. The one month - April - when our high count vastly exceeded that of 1986 reflects a sand lance feeding aggregation. Clearly those 100 eagles came from a huge surrounding area and say little about the year-round “carrying capacity” of the Mendenhall Wetlands.

Congregations of 10 or more eagles occurred in similar places during the two studies - primarily the river mouth and western Gastineau Channel.

Gulls The overall decline of gulls was the opposite of what we had expected. With DIPAC hatchery coming into production and the obvious influx of salmon from the hatchery into wetland streams, plus the large number of gulls that we observed feeding on the effluent from the hatchery, we anticipated an increase in today’s gull population over 1986 levels. It is possible that the large number of gulls observed in 1986 was related in part to the attractant of the nearby Juneau landfill. We remember counting thousands of gulls at the landfill in the early 80’s during the Audubon Christmas bird counts. The open

landfill was closed when the garbage incinerator began operating.

Checking spatial distribution in the 1986 study for flocks of 100 or more, only Glaucous-wings were frequently recorded in units 16 and 17 near the landfill. In general, gulls of all kinds in both study years congregated at the mouths of Mendenhall River and the many streams entering the refuge.

Comparing highest monthly counts separately by species for the 3 common local gulls, the 1986 records were consistently higher than or equal to ours except for Mew Gulls in March and April, and for all 3 species in the month of August. Our high August counts reflect a massive influx of gulls to salmon streams - primarily the DIPAC bonanza. In 1986 only Glaucous-wings showed a minor peak in August; otherwise, whatever supported the high gull numbers in 1986 was available year-round.

Northwestern Crows The number of crows using the wetlands now appears to be considerably less than in 1986 (6.2c). We can

think of two possible reasons. 1) The Juneau landfill attracted large numbers of crows back in the 1980s and may have supported higher populations than the natural food resources can now. 2) We also believe the number of crows using the wetlands for nesting has declined in more recent years. We no longer see the nesting colonies within the floatplane basin area that we used to see a number of years ago. Northwestern Crows nest in young spruces with very dense branches. Most spruces in the floatplane basin are now older and sparser-limbed than optimum for nesting crows.

Crows in groups of 100 or more (post breeding congregations?) were rare in both study years ($n = 7$ for 1986; $n = 5$ for 2002-2003). In both studies these large groups occurred between January and April at the mouth of the Mendenhall, Fish Creek, and near the Dike Trail.

The extremely high February count of 2000 crows in the 1986 survey may have been an amalgamated “superflock.” We have observed such winter gatherings at Lena Beach, north of the refuge, but in 2002-03, our highest Mendenhall Wetlands counts were in the low hundreds.

7 Phenology and distribution

In this section we present information for several groups of birds and for the most abundant species, relying on our full phenology database that includes highest daily counts from numerous sources between 1986 and May, 2003. Graphs merge these results into highest daily count per week, except for three cases (Mallard, Bald Eagle and gulls) where counts are compiled by month. For species

and group distribution maps we employ data only from full surveys in 2002-03. Scaled dots generated in ArcMap show relative importance of hotspots for each species or group (Maps 7.1 through 7.7).

Peak bird numbers on the wetlands occur during spring migration, especially the 5 weeks between mid-April and late May, when the total number of birds could reach a weekly high of 16,000+ individuals (Fig 7.1). Fall migration is spread over a longer period, especially the 9 weeks in July and August, when up to 4,000 individuals per day may be seen. Even in winter, from 2,000 to 5,000 individual birds have been counted on the wetlands.

Canada Geese

Canada Geese are essentially year-round residents on the Mendenhall Wetlands, favoring low marsh and “succulent marsh” zones (section 4) and ponds near the dike. The resident subspecies is the Vancouver Canada Goose (*Branta canadensis fulva*), which lives and nests from northern Southeast Alaska southward to northern Vancouver Island, British Columbia. Within this area it is considered to be essentially a nonmigratory subspecies (O’Clair et al. 1997). Adults leave the Mendenhall wetlands in early April for nesting and adolescents leave in late June to remote areas for molting (Fig 7.2). In August they all begin returning to the wetlands where they remain until being chased out by hunters or extreme freeze-up. The phenology of these events have been described by local waterfowl biologist Jim King and related by O’Clair et al. 1997.

We estimate that the total number of Vancouver Canada Geese using the wetlands is between 500 and 700 individuals. This is based on counts covering the entire wetlands when we were fairly sure the geese had not been

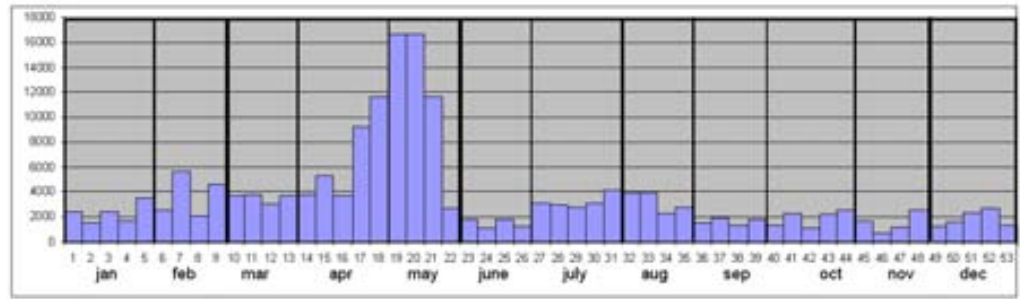


Fig 7.1 Highest number of all species seen by week, 1986 through May 2003

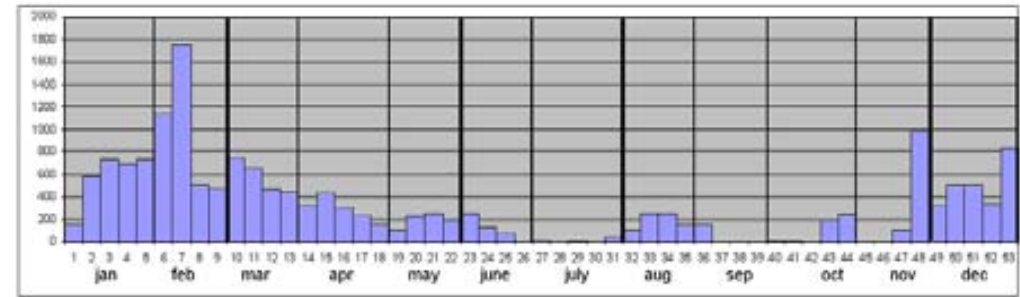


Fig 7.2 Highest number of Canada Geese seen by week, 1986 through May 2003



Fig 7.3 Canada Geese feeding on ditch-grass in the west finger pond as ice melts away, Apr 11, 2002

Map 7.1 Ranking of hotspots for Canada Geese. Largest dot - a08 - had the highest number of geese (1306) counted throughout the study period during full surveys (37 records for the species). Remaining dots are scaled proportionately.



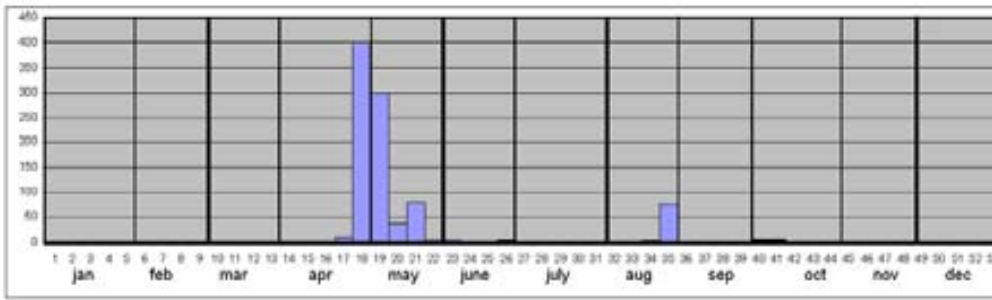


Fig 7.4 Highest number of Greater White-fronted Geese by week, 1986 through May 2003.

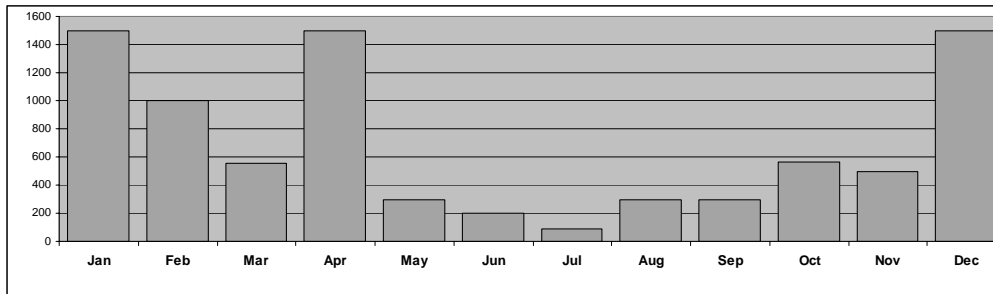
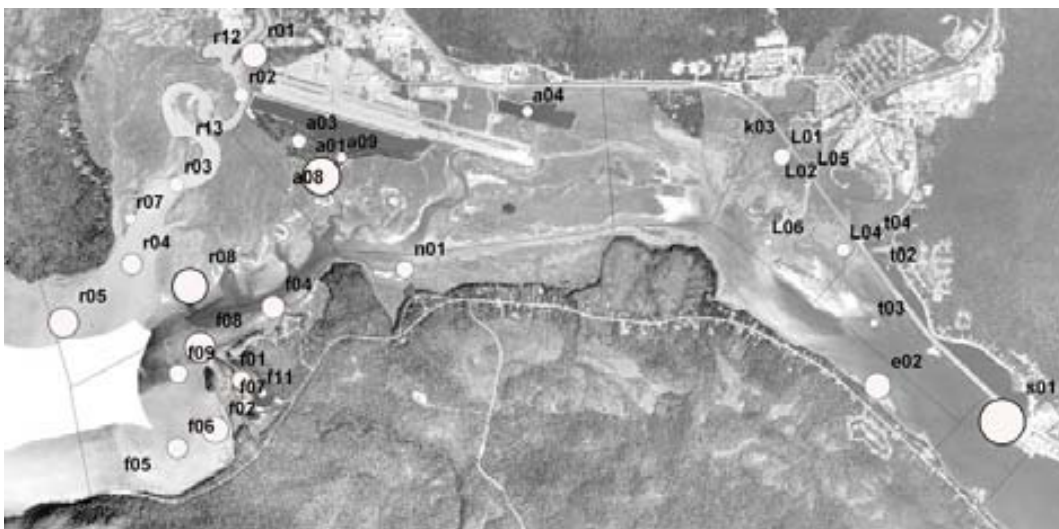


Fig 7.5 Highest number of Mallards seen by month, 1986 through May 2003.



Fig 7.6 Greater White-fronted Geese

Map 7.2 Ranking of hotspots for Mallard. Largest dot - s01 - had the highest number of mallards (1660) counted throughout the study period during full surveys (151 records for the species). Remaining dots are scaled proportionately.



disturbed. The high counts (over 1,000 individuals) recorded the first two weeks of February may have included some double counts from earlier studies when the birds flew from one area of the wetlands into another.

More than any other species, Canada Geese are disproportionately concentrated near the airport for both feeding and resting (Map 7.1) This is a safety concern.

Other geese

Other subspecies of Canada Goose use the wetlands during migration. Although difficult to identify, we have observed the Dusky Canada Goose (*B. c. occidentalis*), Cackling Canada Goose (*B. c. minima*), Aleutian Canada Goose (*B. c. leucoparia*), and Lesser Canada Goose (*B. c. parvipes*) especially during spring migration. These passing Lesser Canadas account for a small portion of some of the spring counts in figure 7.2.

Greater White-fronted Geese have occurred on the wetlands in the hundreds during late April and early May (Fig 7.4), especially in recent years. Snow Geese also occur in small numbers during this period.

Mallards

Mallards occur in greatest numbers on the wetlands from December through April, when up to 1,500 individuals have been seen in one day (Fig 7.5). (Hunting season use may be equally high but undocumented if it occurs at night

as with geese.) In most other months the numbers range from 200 to 500 individuals. The Mendenhall Wetlands are an important wintering area for these birds and an important stop-over for migrant Mallards, judging from the peak

numbers documented in April. While the greatest numbers were seen at Salmon Creek (s01) and the Western Mudflats (r08), Mallards were more equitably distributed throughout the refuge than other species we studied (Map 7.2) The Mendenhall Wetlands provide summer food and limited nesting habitat for Mallards. Every year at least one brood has been observed within the float plane basin.

Other dabbling ducks

Green-winged Teal, Northern Pintail, Northern Shoveler, and American Wigeon have been recorded in the hundreds, especially during April and May and again in August and September (Fig 7.7.) Gadwall and American Wigeon overwinter regularly on the wetlands in small numbers (10 to 100). Peak migratory passage on the refuge is from the last week in April through mid May.

Fall passage is more protracted, lasting from August through October. Species-by-species phenologies for dabbling ducks are found in Appendix C.

Diving ducks

The adjacent saltwater area of Fritz Cove, Gastineau Channel, and ponds within the Mendenhall Wetlands provide habitat for several species of diving- or sea ducks (Map 7.3). The most numerous of these is the Surf Scoter, which occurs in the thousands in April and May (Fig 7.8). Other species that typically number in the hundreds include Greater Scaup, White-winged Scoter, Common Goldeneye, Barrow's Goldeneye and Bufflehead. Diving ducks almost completely abandon the refuge from June through September, with the majority

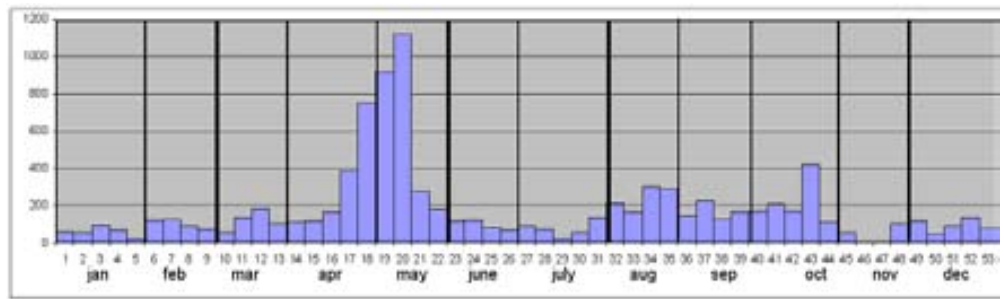


Fig 7.7 Highest number of dabbling ducks (excluding Mallards) seen by week, 1986 through May 2003.

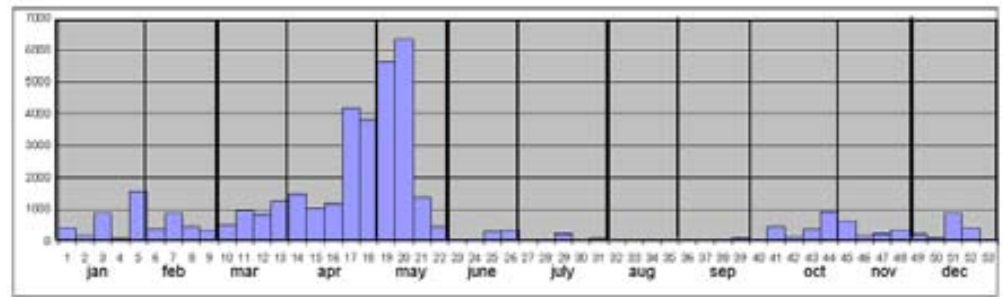


Fig 7.8 Highest number of diving ducks (or "sea ducks") seen by week, 1986 through May 2003.



Fig 7.9 Mallard with young in floatplane finger pond

Map 7.3 Ranking of hotspots for diving ducks. Largest dot - r06 - had the highest number of sea ducks (6968) counted throughout the study period during full surveys (125 records for the group). Remaining dots are scaled proportionately.



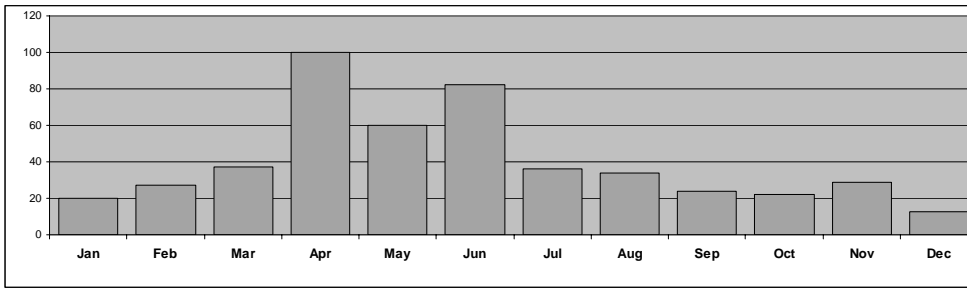


Fig 7.10 Highest number of Bald Eagles seen by month, 1986 through May 2003.

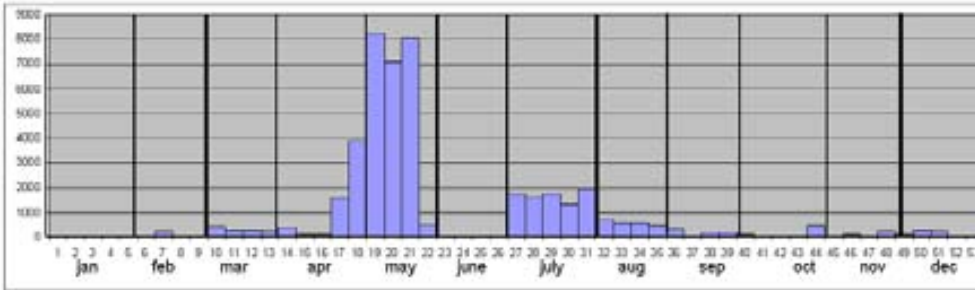


Fig 7.11 Highest number of shorebirds seen by week, 1986 through May 2003.



Map 7.4 Ranking of hotspots for Bald Eagle. Largest dot - r08 - had the highest number of eagles (117) counted throughout the study period during full surveys (56 records for the species). Remaining dots are scaled proportionately.

travelling far inland to nesting grounds. Returning in October, most of these species occur regularly throughout the winter, although overwintering Surf Scoters have been fewer in recent years.

Species-by-species phenologies for diving ducks are found in Appendix C. Distribution maps for several of the more common species are found in Appendix B.

Bald Eagle

In 1986, about 20 bald eagle nests bordered the Mendenhall Wetlands and about 35% of these were active in any given year (Cain et al. 1988). The wetlands have been essential to the nesting success of these birds. Bald Eagles can be found on the wetlands essentially any day of the year, although the spatial distribution differed among seasons (Fig 7.10, Map 7.4). Usually 10 or so eagles can be seen during a wetland survey. Assemblies of 100 or more eagles may gather to feed on Pacific sand lance and eulachon – usually during April and May. These large congregations usually occur at considerable distances from the airport and its approach paths. Probably that is simply because fish are more available downriver, but there may also be a secondary exclusion effect. The nesting pair at Float Plane Basin, “Nellie and

Juan,” are highly territorial, and have been seen to repeatedly drive off other eagles.

In spite of the late-summer abundance of salmon on the wetlands, our eagle counts in August and September are relatively low. Eagles are probably widely dispersed on salmon streams throughout Southeast Alaska at this time, and foraging on higher reaches of streams than the portions we observed in our wetland surveys. Compare Fig 7.10 to the monthly high counts for gulls (Fig 7.14) that respond more dramatically to salmon-related resources, especially near DIPAC.

Shorebirds

Migratory shorebirds on their way north typically occur in peak numbers from mid-April through the third week in May (Fig 7.11). The southward fall migration covers a greater number of weeks, with substantial numbers moving through in July and August. The fall migration of most shorebird species is over by early October.

Western Sandpipers are the most numerous shorebirds. Up to 5,000 individuals have been counted in a single day – on May 12, 1990 and again on May 17, 1992 (data from Paul Suchanek). Over 1,000 Ruddy Turnstones and Surf-birds have also been counted during one day. The wetlands are also important for Black-bellied Plovers, Greater Yellowlegs, Lesser Yellowlegs, Black Turnstones, Semipalmated Sandpipers, Least Sandpipers, Pectoral Sandpipers, Rock Sandpipers, Dunlins, Short-billed Dowitchers, and Long-billed Dowitchers. Counts for these species have typically been in the hundreds per day. Among migrant shorebirds, Greater Yellowlegs are often the earliest to arrive in spring, beginning around the first of April. The latest of the fall-migrant shorebirds is the Pectoral Sandpiper,

sometimes still moving through in early November. Species-by-species phenologies for shorebirds are found in Appendix C.

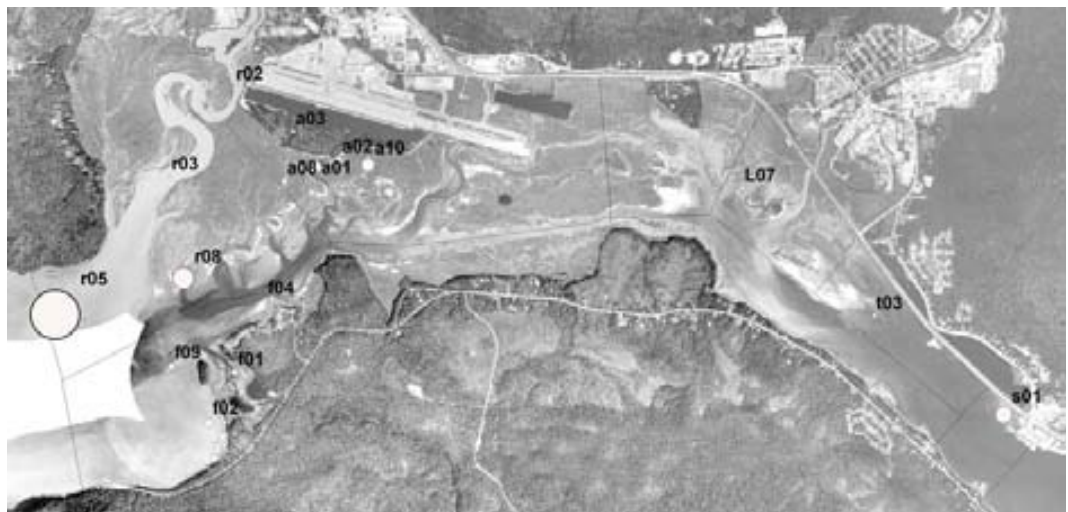
According to Richard Gordon who has kept bird records since the 1960s, spring shorebird migration on the wetlands typically consists of 3 strong pulses occurring between April 26th and May 23rd. After each pulse, shorebird numbers drop precipitously. Fig 7.11 closely matches Gordon’s estimate for overall migratory period, but of course averages out the pulses over the 17-year period of data collection. To effectively document such a dynamic passage, one would have to census the river mouth nearly every day for a month.

Some shorebirds winter on the Mendenhall Wetlands (Killdeer, Rock Sandpiper, Dunlin and Common Snipe). Dunlin often number over 100 individuals. A few species of shorebirds nest in the Juneau area and no doubt utilize the wetlands for feeding and rearing of their young. The local nesters include Killdeer, Greater Yellowlegs, Spotted



Fig 7.13 Western sandpipers at mouth of Mendenhall River, May 5, 2003

Map 7.5 Ranking of hotspots for shorebirds. Largest dot - r05 - had the highest number of shorebirds (3850) counted throughout the study period during full surveys (59 records for the group). Remaining dots are scaled proportionately.



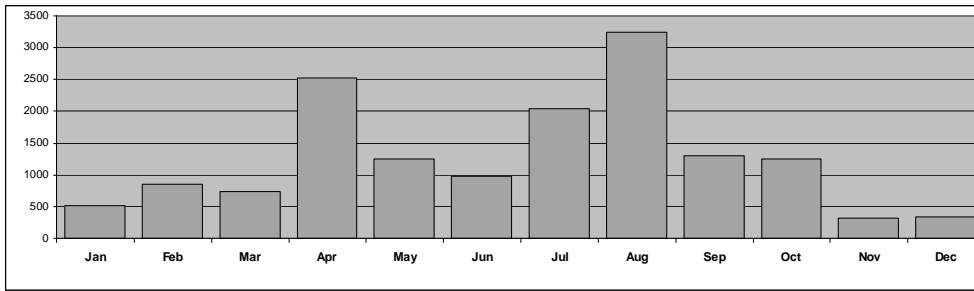


Fig 7.14 Highest number of gulls and terns seen by month, 1986 through May 2003.

Sandpiper, Least Sandpiper, and Common Snipe. Over the years we have found nests of Killdeer, Spotted Sandpiper and Least Sandpiper on the wetlands and have also observed nesting Greater Yellowlegs and Common Snipe in nearby bogs. Nesting Least Sandpipers have not been observed in recent years.

Gulls

Gulls are present on the Mendenhall Wetlands year-



Fig 7.15 From left to right: Mew Gull, Bonaparte's Gull, and immature Glaucous-winged Gull in the bed of Salmon Creek, Aug 26, 2002. We observed specialized foraging behavior at that time. Glaucous-wings primarily ate from the long-dead salmon carcasses. Mews tended to forage for invertebrates, especially in the rockweed patches. And many Bonapartes wheeled over the creek, collecting washed-down salmon eggs. (Willson, unpublished data.)



round. The two common overwintering species, Mew Gull and Glaucous-winged Gull, typically occur in the hundreds and on occasion over a thousand individuals (Fig 7.14). Both species concentrated at Salmon Creek estuary (s01) in fall, but the distribution of

Glaucous-winged Gulls in spring differed from fall. Bonaparte's Gulls regularly occur in the hundreds, occasionally over 1,000, from mid-April to early October.

Glaucous-winged and Herring Gulls have a nesting colony on the rock face near the Mendenhall Glacier and probably use the Mendenhall Wetlands for foraging. Arctic Terns also use the Mendenhall Wetlands for feeding from late April to late August. The former spoil-island nesting colony in the central wetlands has been recently abandoned and we observed no nesting there in 2002 or 2003. Terns presently nest near the Mendenhall Glacier Visitor Center, and these birds probably use the wetlands for foraging.

Considering the abundant natural food resources at the confluence of the Mendenhall River, Fish Creek, and western Gastineau Channel, it is impressive that DIPAC hatchery concentrates even higher numbers of gulls (Map 7.6)

Species-by-species phenologies for gulls are found in Appendix C. Distribution maps for the 3 most common species - Mew, Bonaparte's and Glaucous-winged - are found in Appendix B.

Northwestern Crows

Crows are common year-round

Map 7.6 Ranking of hotspots for gulls and terns. Largest dot - s01- had the highest number of gulls (2735) counted throughout the study period during full surveys (136 records for the group). Remaining dots are scaled proportionately.